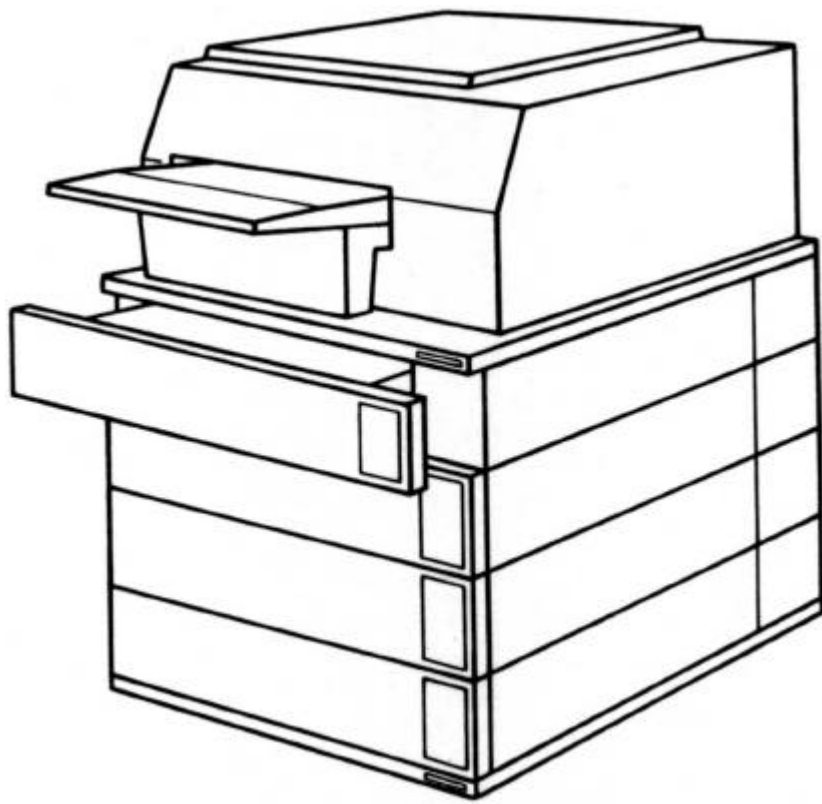


TowerFeedTM Service Manual



Rutishauser

SERVICE MANUAL

TowerFeed™ 444

TABLE OF CONTENTS	1
INTRODUCTION	3
THEORY OF OPERATIONS	
Main Components	4
Functional Description	4
Functional Diagram	5
Code Pin Setup	5
ELECTRONIC COMPONENTS	6
MECHANICAL COMPONENTS	7
Side View of Modules	7
Master Module (Top View)	8
Slave Module (Top View)	9
Drawer (Top View)	10
LIST OF SPARE PARTS	11
HINTS	12
Removing the Covers	12
Replacing PCB's	12
Replacing Rollers	12

This Service Manual provides besides spare-parts listings and maintenance information also detailed flowcharts for quick diagnostic of the most common problems that can occur with TowerFeed 444. The information is intended as an aid to support qualified service personnel in servicing the product and ordering spare parts. It is recommended to have absolved a technical training on TowerFeed before using this manual.

Caution:

Improper maintenance or modification of the unit may result in voiding the warranty of the product.

Warning:

For your own safety as well as that of the equipment, SWITCH OFF the power to TowerFeed and printer and remove the power cord before you begin any maintenance activity.

TowerFeed weighs up to **130 pounds (57 kilograms)**. To prevent back strain or injury, bend your knees when lifting the unit, and enlist the help of someone if you need it.

Maintenance

TowerFeed 444 is designed to operate with minimum maintenance. No special tools are required, although 2 special bowtools are very helpful (included in Service kit Part No. 270 302).

Preventive maintenance steps:

- Lift the printer away from TowerFeed. Pull out and remove all drawers.
- Clean all Paper Separation Rollers and Transport Rollers periodically by using a platen cleaner such as the recommended Rutishauser platen cleaner Part No. 300 099 or other special platen cleaner.

Caution:

Don't use any other cleaning liquids. This may damage the rollers.

- Lubrication may be indicated when a moving part has been replaced or when TowerFeed 444 has been submitted to extensive use (approx. after 100'000 feed cycles). If lubrication is needed use only the oil included in the service kit Part No. 270 302.

Ordering Spare parts

You can find the parts numbers for your TowerFeed model on page 11 of this Service Manual.

THEORY OF OPERATIONS

Main Components



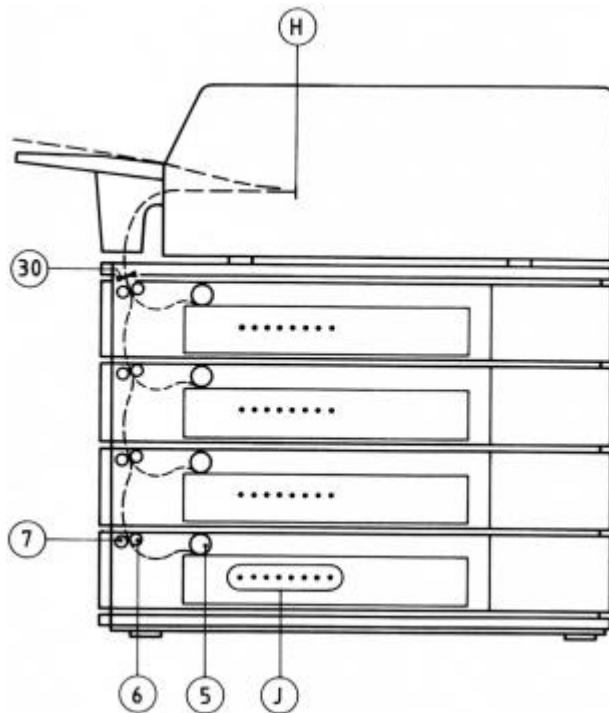
Item	Description
A	Master Module
B	Slave Modules
C	Drawers
D	Cover Plate
E	Printer Adapter (printer model dependent)
F	Manual Insertion Slot
G	Printer
K	Storage Module(s)
L	Bottom Plate
M	Roller Kit (model dependent)

When ordering Spare Parts, please indicate the model and serial number of your TowerFeed.

Functional Description

TowerFeed consists of at least two stacked Modules. Each Module embodies a Drawer (Paper or Storage Drawer) which can be pulled open, removed and replaced. Each Feed Module (Master Module and Slave Module(s)) is equipped with Separation Rollers that extract sheets from the Paper Drawer one at the time. The separated sheet is held by the Separation Rollers and is fed to the vertical paper path into a set of Transportation Rollers. Once the sheet is held by the Transportation Rollers, the Separation Rollers are disengaged. The Transportation Rollers continue to feed the sheet upwards through the Master Module and (depending on the printer model) the Printer Adapter to the pick-up point within the printer. The TowerFeed Motor Drive is switched off at this point of time. The sheet then is ready to be picked up by the printer.

Functional Diagram



Item Description

H	Pick-up Point, defined
J	Code Pin Location
5	Separation Roller Shaft
6	Transport Roller Shaft
7	Pressure Roller Shaft
30	Paper Path Sensor

Code Pin Setup

The Code Pins are located on the right side of the Drawer. Three (3) user Code Pins are located on the left side of the Drawer, opposite to the Code Pin location (J). To activate a code position, remove the corresponding pin to the left and insert it to the desired right position. Code Pins No. 6, 7 and 8 are optional, user programmable and are intended to distinguish among paper types of the same size. Code pins No.1 (drawer closed) and No. 2, through 5 (paper size) are factory preset and must not be changed.

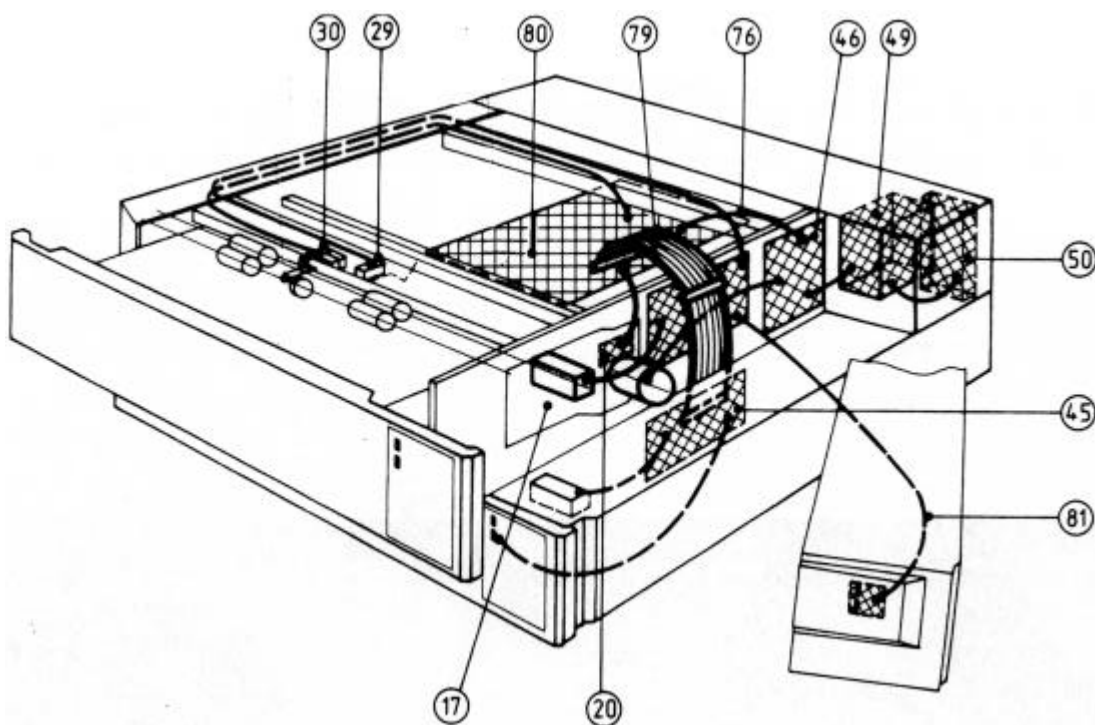
Code Pin No.	Paper Size			Drawer closed	
	5	4	3	2	1
A4 portrait	○	○	○	●	●
US Letter portrait	○	○	●	●	●
US Legal portrait	○	●	●	○	●

● = pin installed

○ = pin not installed (empty)

ELECTRONIC COMPONENTS

Electronic Components



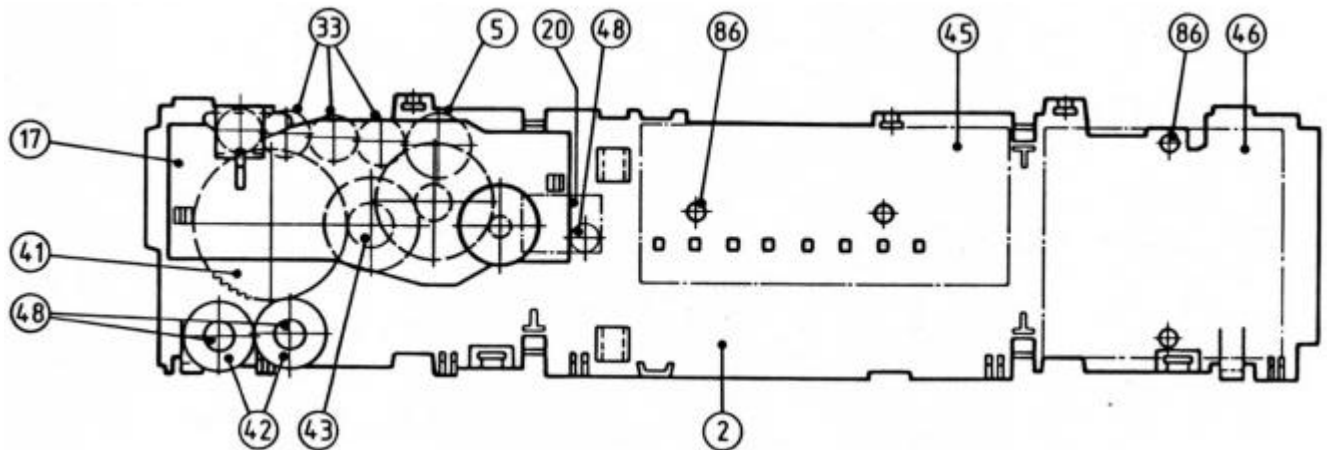
Item	Description
------	-------------

17	Support Assy.(Master)
20	Light Barrier PCB
29	Paper-out Kit
30	Paper Path Sensor Kit
45	Module Electronics PCB
46	Power Supply PCB
49	Transformer Assy.
50	Power Inlet Kit
76	Power Harness
79	Flat Cable
80	Logic PCB
81	Indicator PCB
99	In-Line Controller PCB (model dependent)

Side View of Modules

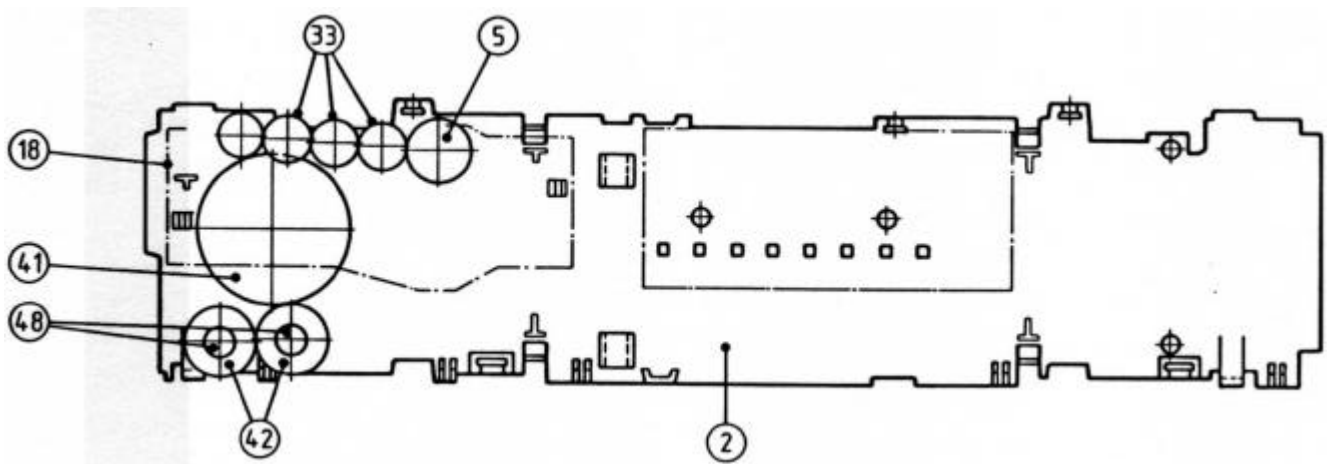
Master Module

(top view see page 8)



Slave Module

(top view see page 9)



Item Description

- 02 Main Plate, right
- 05 Separation Roller Assy.
- 17 Support Assy. (Master)
- 18 Support Assy. (Slave)
- 20 Light Barrier PCB
- 33 Gear Wheel (Z16)
- 41 Gear Wheel (Z53)

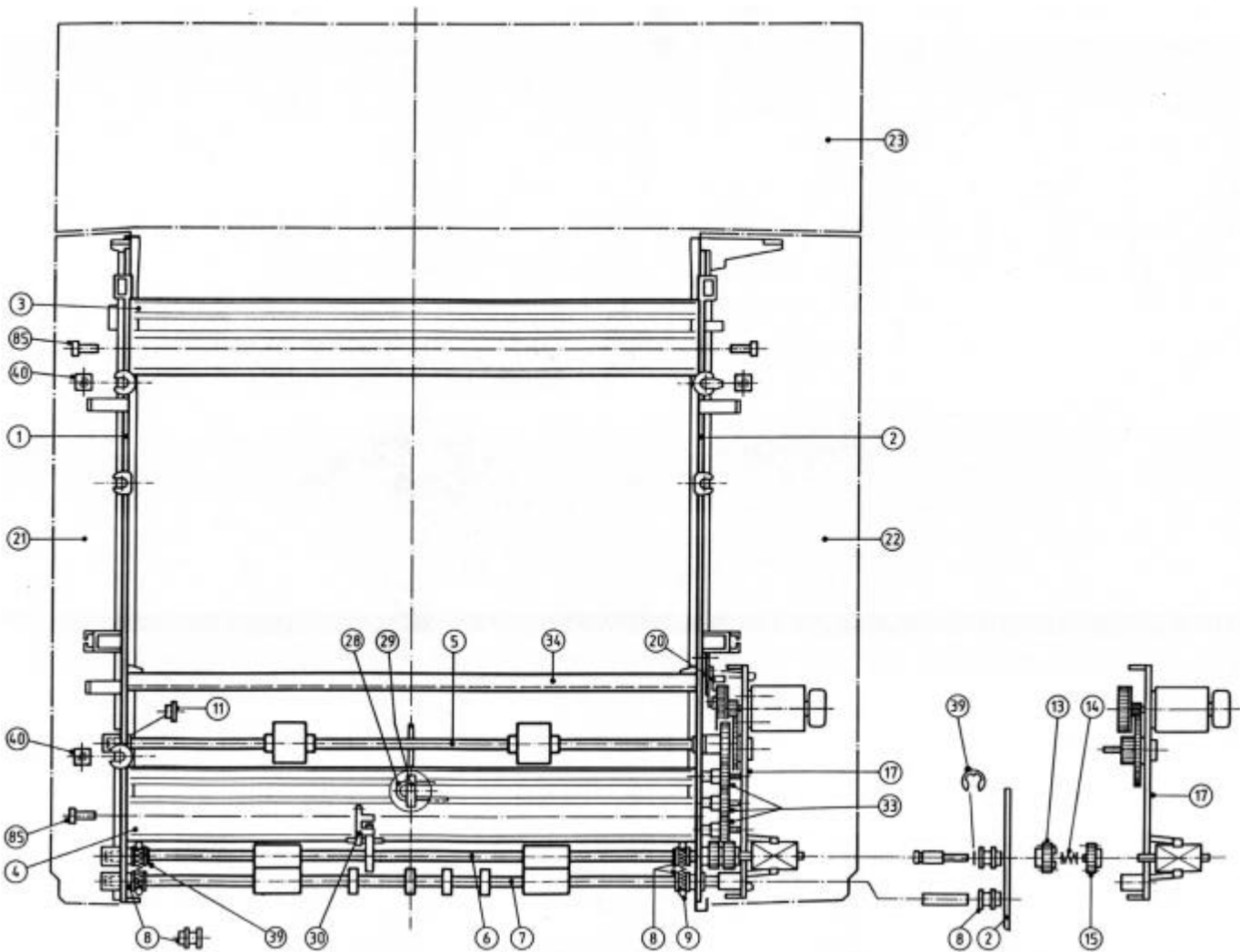
Item Description

- 42 Gear Wheel (Z24)
- 43 Gear Wheel (Z15/54)
- 45 Module Electronics PCB
- 46 Power Supply PCB
- 48 Retention Cap48
- 86 Screw (M2,9x6,5)

MECHANICAL COMPONENTS

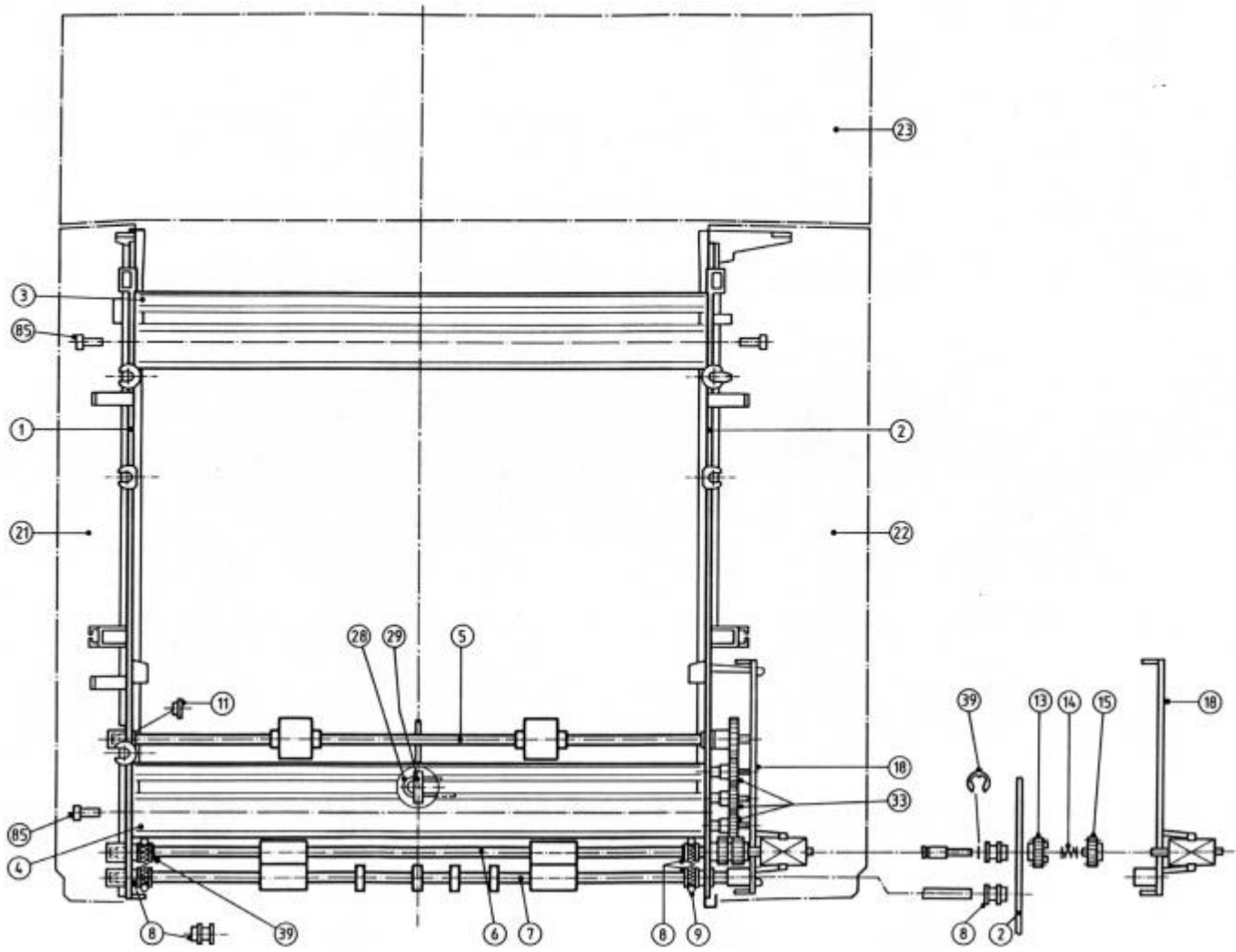
Master Module (Top View)

(side view see page 7, parts list see page 11)



Slave Module (Top View)

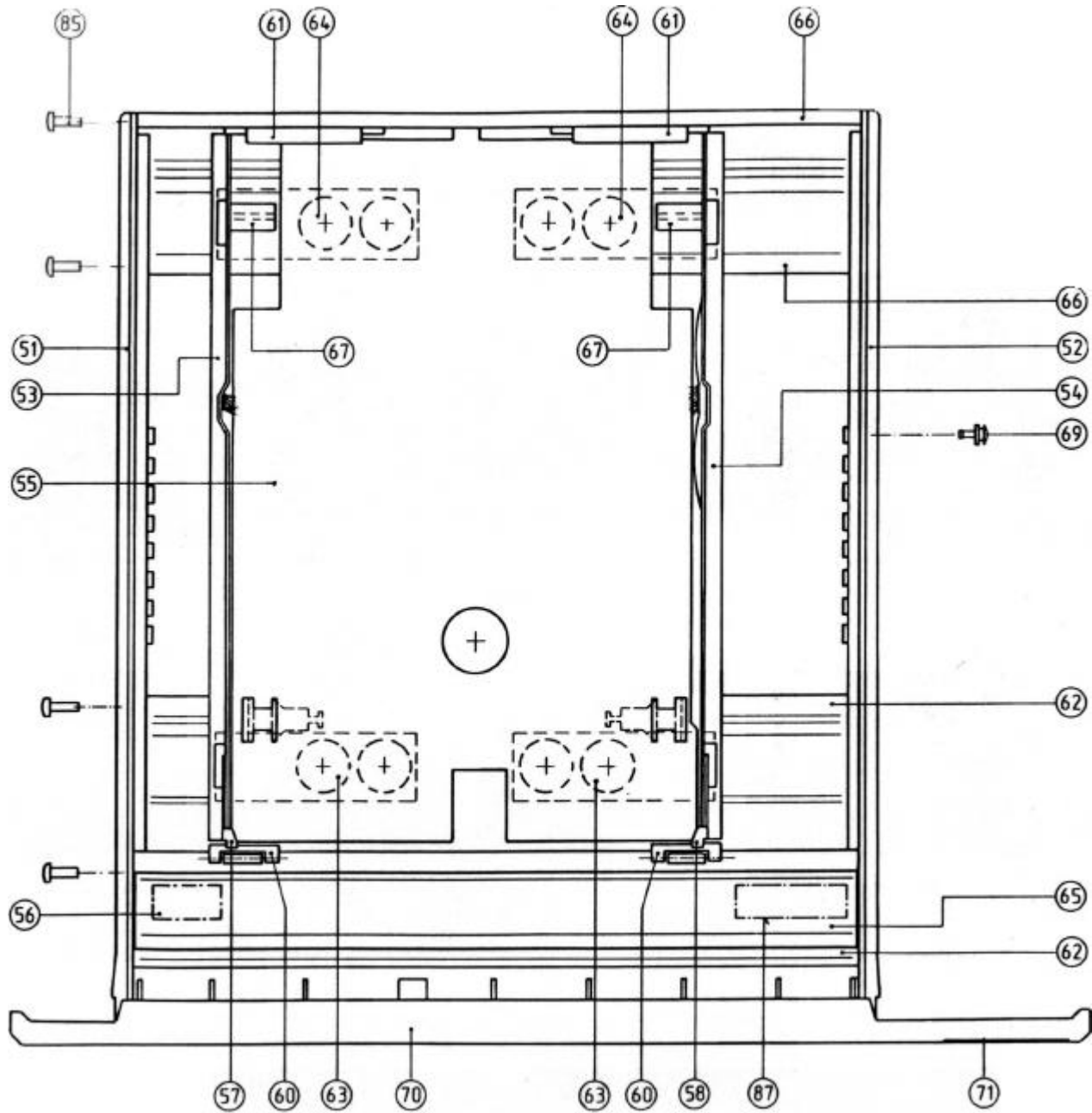
(side view see page 7, parts list see page 11)



MECHANICAL COMPONENTS

Drawer (Top View)

(parts list see page 11)



(see page 5 for Code Pin Setup)

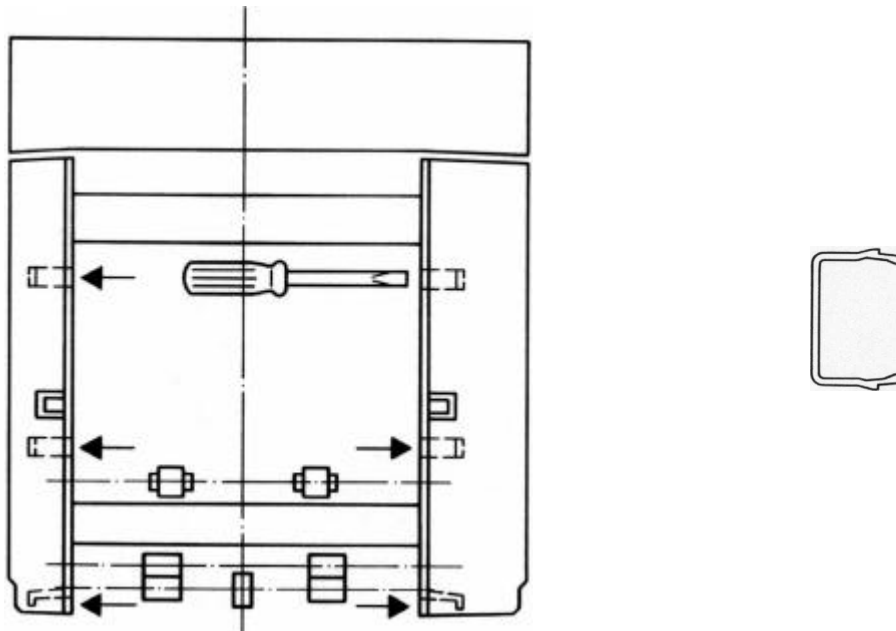
LIST OF SPARE PARTS

Item	Description	Order-No.	Item	Description	Order-No.
C	Drawer A4 portrait (LJ4000/4/4Si)	320 101-AA	49	Transformer Assy. 220V	203 320
	Drawer US Letter portrait (LJ4000/4/4Si)	320 104-AA		Transformer Assy. 110V	203 320-XA
	Drawer US Legal portrait (LJ4000/4/4Si)	320 131-AA	50	Power Inlet Kit	270 307
	Drawer US Letter landscape	320 105-XA	51	Side Plate, left 11" (Drawer)	282 335
	Drawer US Legal portrait (LJ8000/5Si)	320 131-XA		Side Plate, left 14" (Drawer)	282 335-AX
	Drawer US Ledger portrait (LJ8000/5Si)	320 142-XA		Side Plate, left 17" (Drawer)	282 335-BX
	Drawer A4 landscape (LJ8000/5Si)	320 102-XA	52	Side Plate, right 11" (Drawer)	282 336
	Drawer A3 portrait (LJ8000/5Si)	320 141-XA		Side Plate, right 14" (Drawer)	282 336-AX
D	Top Cover SX Engines	203 318-XK		Side Plate, right 17" (Drawer)	282 336-BX
	Top Cover HP LJ II + III	203 318-XM	53	Guide Plate, left	various 1)
E	Printer Adapter (standard)	203 333	54	Guide Plate, right	various 1)
	Printer Adapter (special, L-shute)	203 353	55	Pressure Plate	various 1)
	Adapter Cover for HP LJ III	282 345	56	Size Label (Custom)	various 1)
M	Roller Kit (1 roll, 4 screws)	270 301	57	Separation Corner, left	212 305
			58	Separation Corner, right	212 306
	Service Kit*	270 302	60	Limiter, front	282 376-XA
1	Main Plate, left	282 321	61	Pressure Plate Guide	282 378
2	Main Plate, right	282 322	62	Deflector Profile	282 306-AA
3	Profile, rear (Master Module)	282 305-XD	63	Spring, pressure front	various 1)
4	Profile, front (Master Module)	282 311-XA	64	Spring, pressure rear	various 1)
5	Separation Roller Assy.	203 301-XA	65	Profile, curved	282 312
6	Transport Roller Shaft Assy.	203 306	66	Profile, rear	various 1)
7	Pressure Shaft Assy.	203 313	67	Limiter, rear	282 377
8	Retention Bushing	282 387	69	Code Pin	282 369
9	Spring, tension (w/o Adapter Mod.)	232 301	70	Front Panel	282 334
11	Bearing (Plastic)	242 305		Front Panel TF LJ 8000/5Si	282 334-XA
13	Pionion Drive, right /Z15x1)	203 310	71	Template (w/o Windows)	271 312
14	Spring, pressure	232 306	76	Power Harness	1010 0011
15	Pinion, sliding /Z15x1)	282 352	79	Flat Cable (for 2 drawers)	1010 0007
17	Support Assy. (w. Motor)	901 919-XA		Flat Cable (for 3 to 7 drawers)	1010 0070
18	Support Assy. (w/o Motor)	901 920	80	Logic PCB (for all TF444)	1000 0065
20	Light Barrier PCB	1000 0010		Inline Controller par. PCB	1000 0033
21	Cover, left	282 325		Inline Controller ser. PCB	1000 0034
22	Cover, right	282 326	81	Indicator PCB	1000 0009
23	Cover, rear (w/o ILC)	282 332-XC	85	Screw (M4x12)	290 026
	Cover, rear, ILC-serial	282 332-XD	87	Operator Label (Custom)	-
	Cover, rear, ILC-parallel	282 332-XE			
	Cover, rear (slave)	282 332		Data Cables:	
28	Retainer	282 374		Serial RS-232 1,8m male-female	1010 0036
29	Paper-out Kit	270 305		Serial RS-232 0,5m male-female	1000 0044
30	Paper Sensor Kit	270 306		Serial RS-232 0,7m male-male	1010 0046
33	Gear Wheel (Z16x1)	282 353		Centronics 0,5m male-female	1010 0045
34	U-Profile	282 309			
39	Circlip D6	200 037		* contains:	
40	Nut, square (M5)	292 504		2x Red Bows (Retaining Tool)	
41	Gear Wheel (Z53)	282 355		1x Lubrication Oil	
42	Gear Wheel (Z24)	282 358		1x Platen Cleaner	
43	Gear Wheel (Z15/54)	282 370			
45	Module Electronic PCB	1000 0029	1)	Please indicate part no. of drawer when	
46	Power Supply 1 Motor	1000 0027		ordering these parts.	
	Power Supply 2 Motors	1000 0050			
48	Retention Cap	282 050			

HINTS

Removing the Covers

To gain access to mechanical and electronic parts, the left, right and rear covers may need to be removed. Remove the drawer of the corresponding module. From inside the module, insert a bow (2 pcs. included in Service Kit No. 270 302) through the two sets of holes in the main plate to release the locking latches and remove the covers.

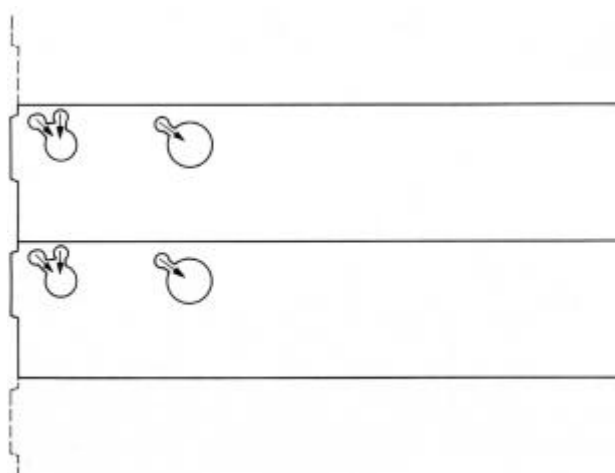


Replacing PCB's

Rutishauser recommends to replace the electronic printed circuit boards (PCB) when needed. When replacing the Module Electronics PCB, the Module address jumper has to be set, to reflect the physical position of the Module starting from the top as Module address No. 1 and increasing downwards.

Replacing Rollers

The Separation and Transport roller shafts can simply be replaced by guiding them through the large holes provided in the right Main Plate. The Support and Gear assemblies have to be removed for this purpose. For simplicity, gears allow correct assembly only.



Rutishauser Data AG, Switzerland, reserves the right to make changes to its products or services without prior notice and without incurring any obligations to incorporate such changes in units or publications shipped.

Rutishauser shall in no event be liable for incidental or consequential damages arising from the use of its equipment.

Manufactured by

Rutishauser Data AG
Kronenstrasse 9
CH-8712 Stäfa
Switzerland

Tel: +41/ 1 928 18 28
Fax +41/ 1 928 18 29
e-mail infodesk@rutishauser.ch
Internet: <http://www.rutishauser.ch>

The logo for Rutishauser, featuring the company name in a bold, white, sans-serif font. The text is set against a black rectangular background, which is itself flanked by red bars on both the left and right sides.